NOAA, NATIONAL WEATHER SERVICE, WEATHER FORECAST OFFICE

Miami, Florida 33165

South Florida Dry Season Outlook 2010-2011

Strong Likelihood of Very Dry Conditions This Coming Winter and Spring

October 19th, 2010: The National Weather Service forecast for the upcoming winter and spring season of 2010-2011 is for La Niña conditions to persist and strengthen through the upcoming winter months and into spring 2011. La Niña is the cold water phase of the ENSO (El Niño Southern Oscillation) cycle, and is characterized by a cooling of waters in the central and eastern equatorial Pacific waters. This cooling of the equatorial Pacific to below normal values affects large scale weather systems across North America. The main impact of La Niña in Florida is typically a very dry and less stormy winter and early spring. This could lead to water management issues as well as an increased risk of wildfires next spring.

The present La Niña developed this summer and is currently at moderate strength. Latest forecasts and outlooks from NOAA's Climate Prediction Center indicate that this La Niña will probably reach strong levels during the 2010-2011 winter season. If the current La Niña event develops as expected, south Florida can expect drier than normal conditions this dry season (November through April).

The strong likelihood of drier than normal conditions can be attributed to a northward shift in the jet stream which normally occurs during moderate to strong La Niña episodes (Figure 1). This more northward position of the jet stream over the northern United States keeps winter storm systems north of Florida, while at the same time favoring high pressure over the western Atlantic and southeast United States. This pattern tends to increase atmospheric stability and decrease available moisture as frontal systems move through Florida. The end result is a strong tendency towards less storminess and overall rainfall during what is already a dry time of year in south Florida (Figure 2 and 3).

Previous moderate to strong La Niña episodes resulted in South Florida dry season rainfall totals which were well below normal, averaging about 60-65% of normal for the six-month period from November to April (Figure 4). The average dry season rainfall over south Florida ranges from 12 to 15 inches over interior and western sections to 15 to 21 inches over eastern metro sections.

Winter and spring temperature trends are not as well defined for La Niña events as for precipitation; however with the possibility of high pressure extending across Florida from the Atlantic, along with the more northerly position of the polar jet stream, above-normal temperatures are slightly favored this winter due to the resulting predominance of wind flow off the warm Atlantic waters as well as less cloud cover. The official CPC forecast calls for equal chances of above, below or near normal temperatures for South Florida (Figure 5). A factor that typically plays a major role in temperatures is the intra-seasonal variation in regional and global weather patterns that either counteracts or enhances the prevailing La Niña pattern. Some examples of these variations, or oscillations, are the Pacific-North American Pattern (PNA) and the North Atlantic Oscillation (NAO, Figure 6). The average winter temperatures over south Florida range from 64 to 66 degrees over interior and western areas to 67 to 69 degrees over eastern metro areas.

The threat of wildfires increases substantially during very dry winter and spring periods, therefore the expectation of a drier than normal 2010-2011 dry season increases the risk of wildfires, particularly during the months of March, April and May. An additional concern is the decrease in water levels which occurs every dry season, but could be exacerbated this coming dry season by below normal rainfall. Therefore, South Floridians are urged to stay informed and heed the advice of local officials regarding the wildfire threat as well as issues relating to water management and conservation.

Stay tuned to local media outlets and NOAA Weather Radio for the latest weather information. For more information on the expected impacts of La Niña in south Florida, as well as for updated local weather information and outlooks, please visit the National Weather Service in Miami web site at weather.gov/southflorida. You can also visit our South Florida Climate Page.

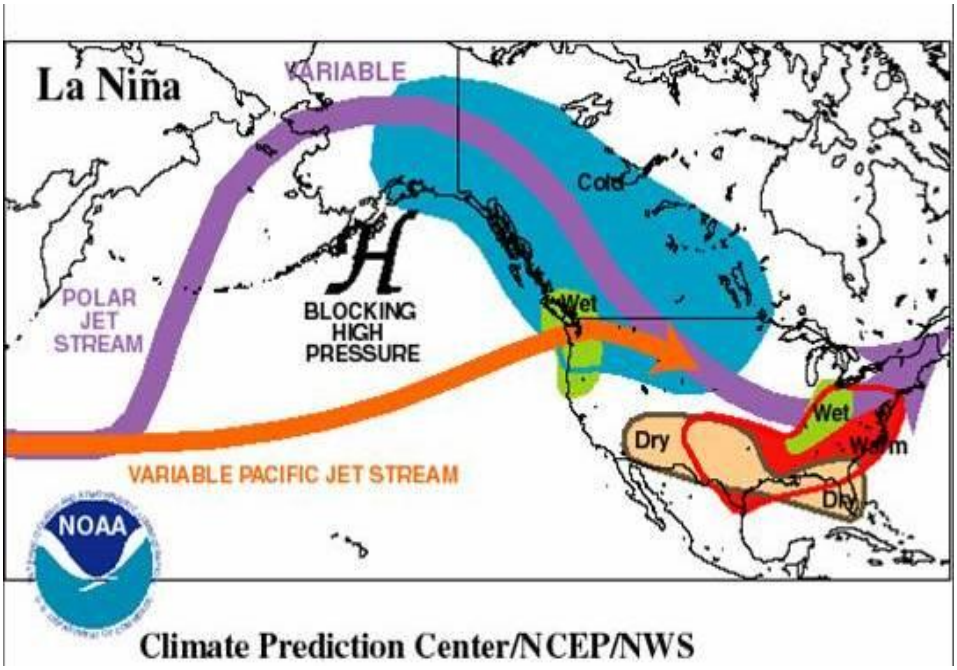

Figure 1: Typical weather pattern observed during La Niña winters.

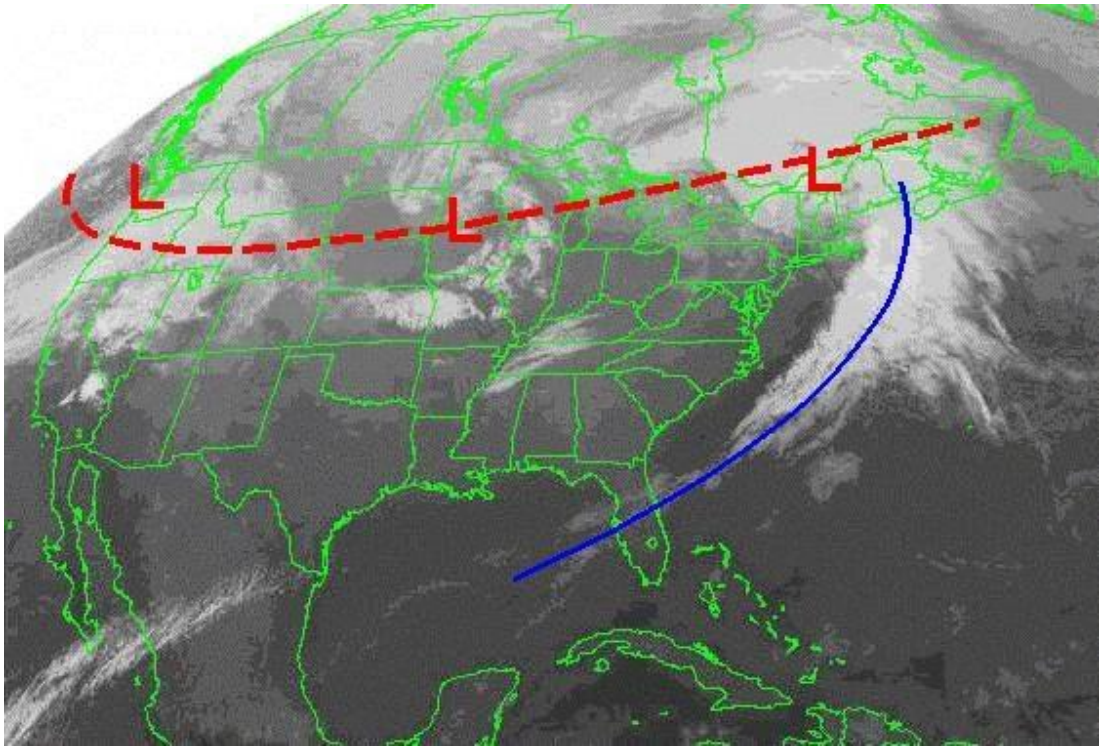

Figure 2: Storm Track during Strong La Niña Episodes (courtesy NWS Melbourne)

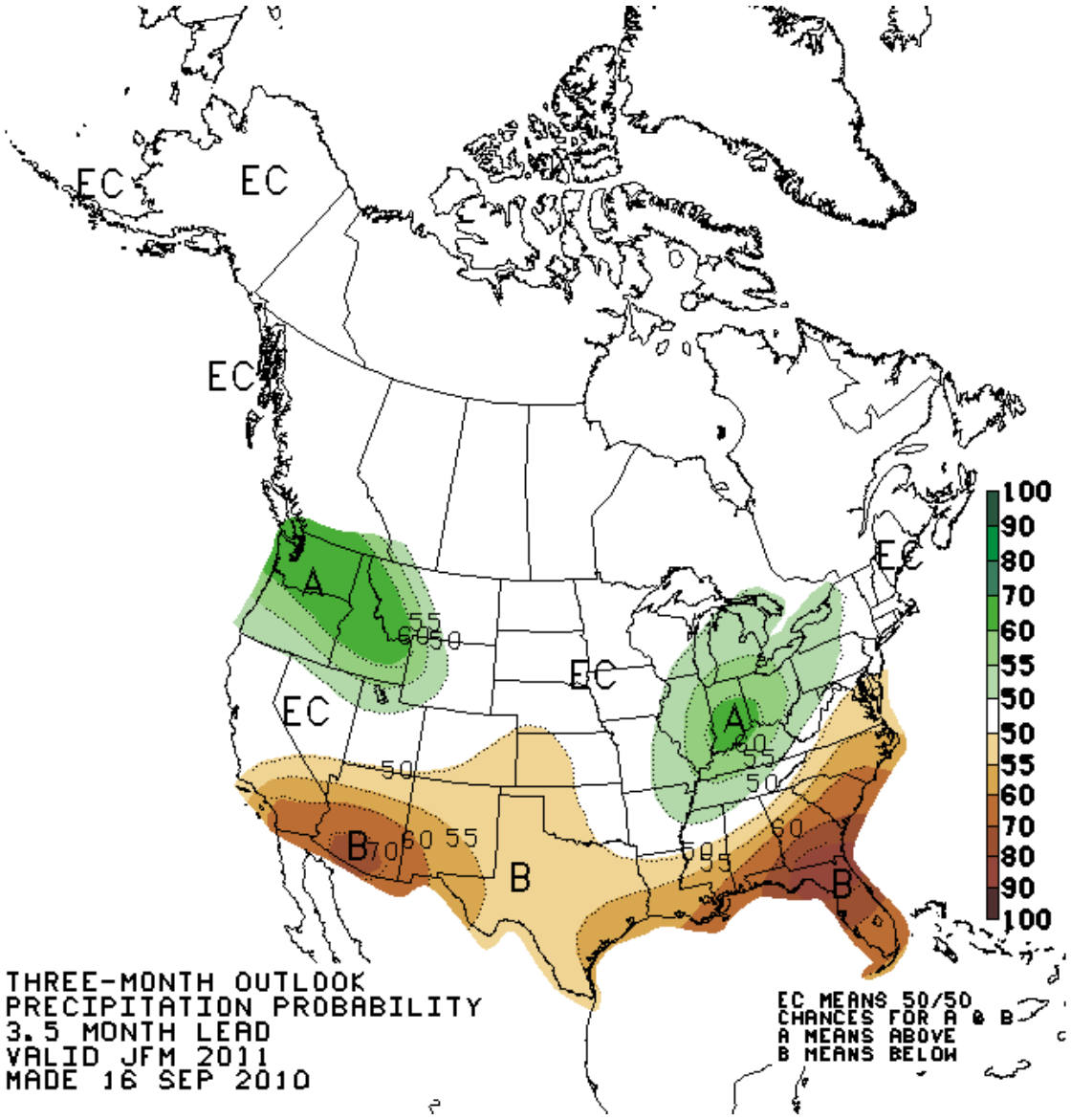

Figure 3: CPC Precipitation Outlook January-March. Entire Florida peninsula has a 60-80 % chance of drier than normal conditions.

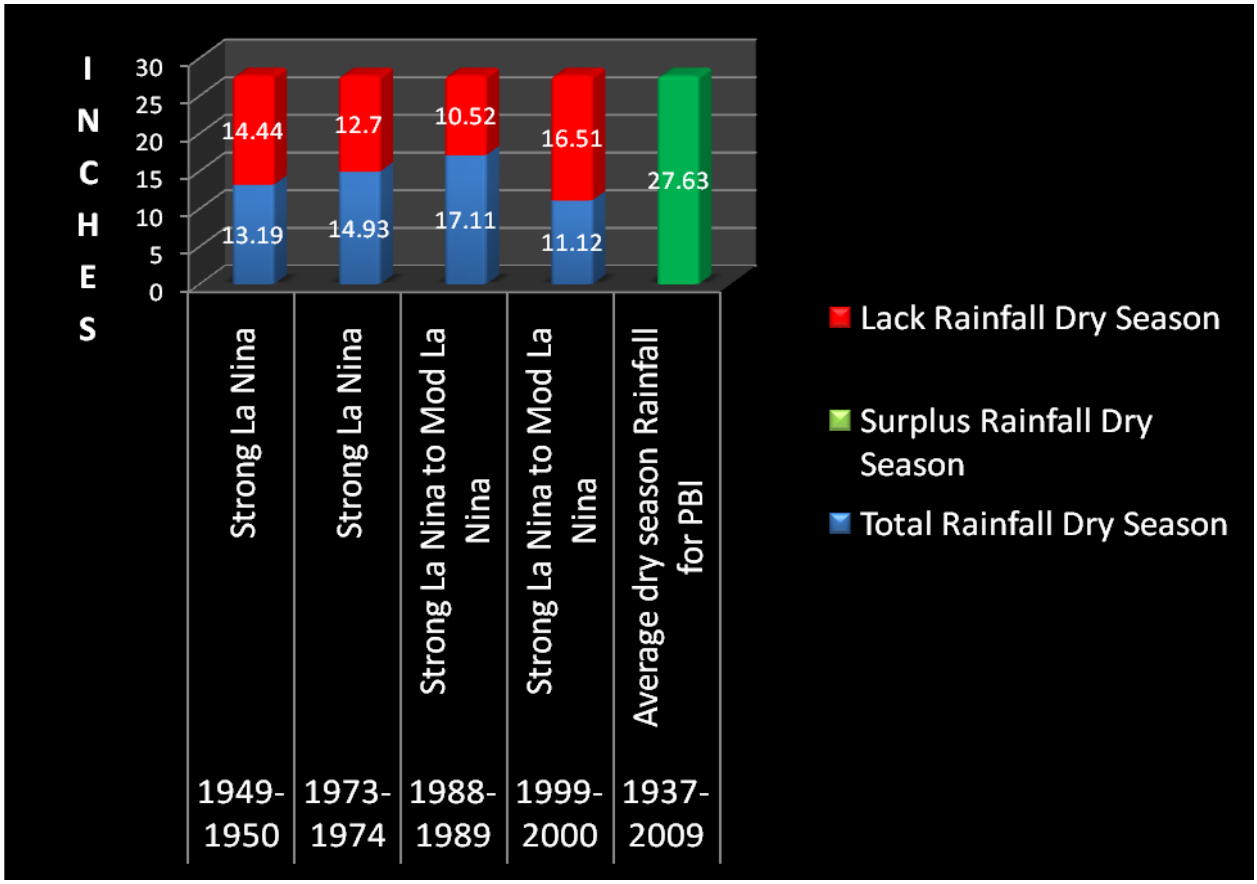

Figure 4: Precipitation at West Palm Beach during Previous Moderate/Strong La Niña Events. Red portion of bars indicates dry season rainfall deficits during those years. Green bar at right represents the 30-year average Nov-Apr rainfall.

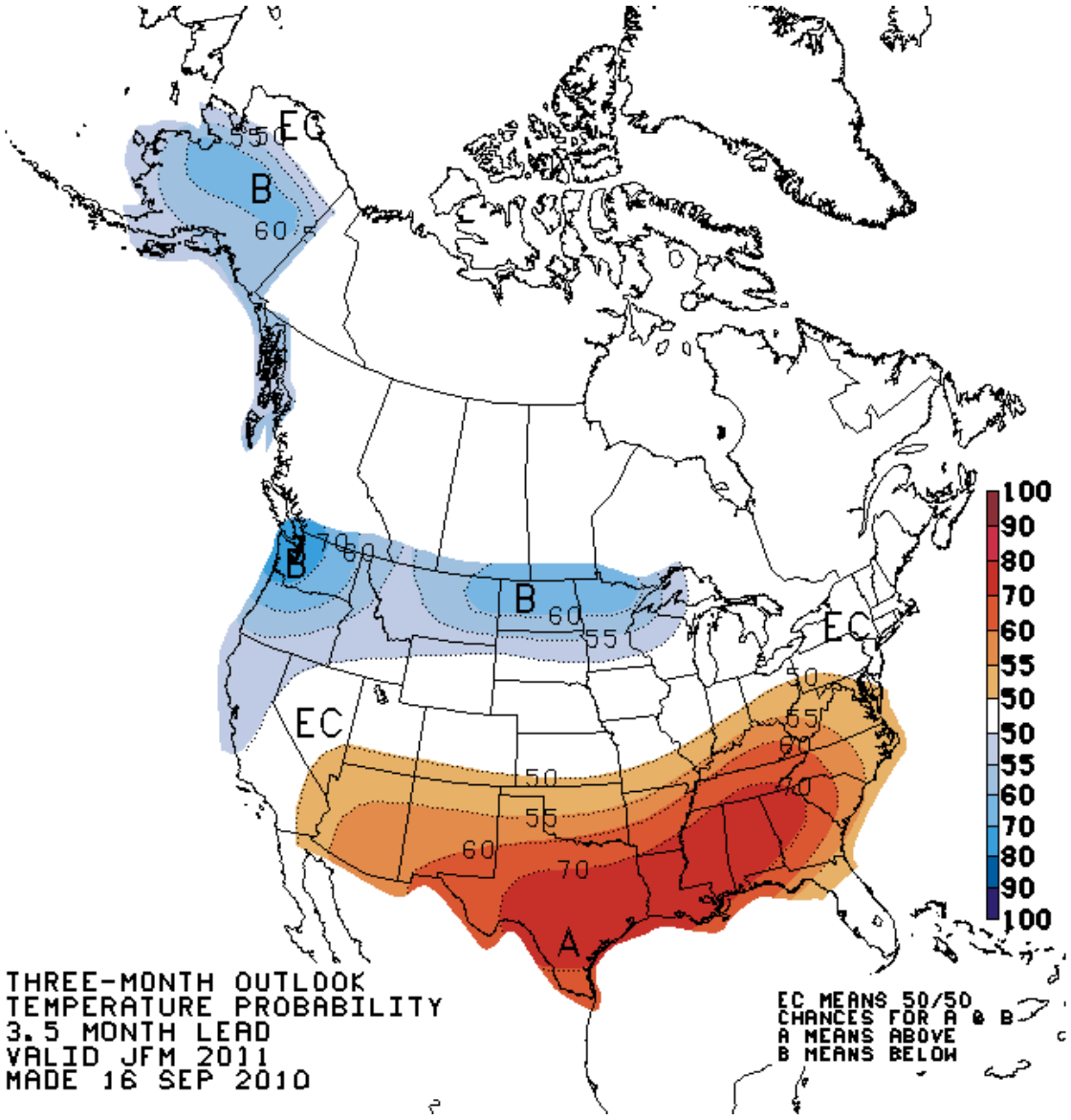

Figure 5: CPC Temperature Outlook January-March. South Florida has an equal chance of above or below normal temperatures, with North Florida having a 50-70% chance of above normal temperatures.

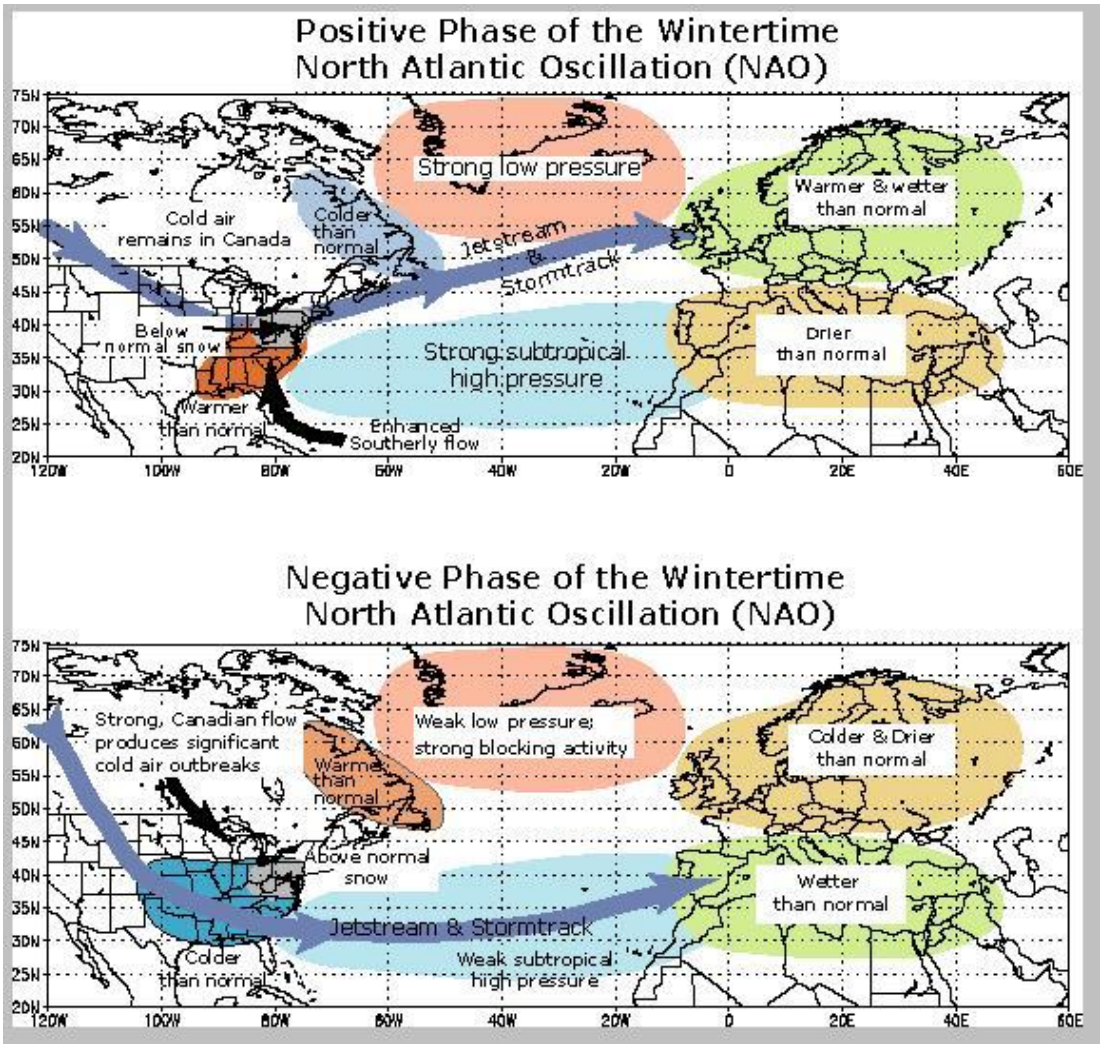

Figure 6: Positive and Negative Phases of the NAO